

## BACKGROUND OF THE INVENTION

STATE of the ART vacuuming, with a vacuum hose, is done by a person manually moving the vacuum end of a hose to the point to be vacuumed or using a boom arm to move it into place. There has not been a means to vacuum a hole in the ground larger than the vacuum area of the hose. For example, an 8 inch diameter hose will vacuum approximately an 8 inch diameter hole.

## SUMMARY OF THE INVENTION

The present invention relates to a vacuum hose arrangement, which will vacuum a hole into the ground that is twice to three times the diameter of the vacuum hose.

The above-mentioned objective and others are accomplished by the present invention by having a segment of flexible vacuum hose with a structural support rod mounted parallel to the vacuum hose. The support rod will have an offset bend a number of degrees off the original center axis of the vacuum hose. By rotating the bent rod the attached flexible vacuum hose will track parallel to the motion of the bent rod, although the vacuum hose does not rotate.

5           The structural bent rod may be rotated by a power head whose power means may be an electric motor, an air motor, a hydraulic motor or a combustion engine.

          A water nozzle, air nozzle, or vibrator may be added in proximity to the suction end of the vacuum hose to assist in preparing the dirt or other  
10 substances to be vacuum able.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG 1-       shows a ridged vacuum conduit 2 having a vacuum source attachment 1 and a segment of flexible vacuum hose 6 with the suction end 8 of the hose vacuuming a hole 9 in the earth 10. A bent  
15 rod 4 is attached parallel to the vacuum hose by a flexible hose connector 7, a ridged hose connector 5 and a drive support 3. A powered drive motor 3 rotates the bent rod 4, which rotates in the connectors thus causing the flexible vacuum hose 6 to track parallel to the bent rod 4. FIG 1 shows the suction end 8 of the vacuum hose  
20 located to the right of the vacuumed hole 9.

FIG 2-       is similar to Fig 1 except that FIG 2 shows the suction end 8 of the vacuum hose tracked to the left of the vacuumed hole 9. FIG 2 also shows a water spray nozzle 12 which sprays water 13 under pressure in

5 order to emulsify or make vacuum able the earth 10 to be vacuumed. A  
water supply hose 11 provides water 13 under pressure to the nozzle 12.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

It is the objective of this invention to provide a vacuum hose having a  
10 bent rod 4 attached parallel to it. The angular bend of the rod 4 may be  
parallel to a flexible segment 6 of vacuum hose. A connector 7 is securely  
attached to the flexible vacuum hose 6 below the angular bend of rod 4.  
Connector rod 7 allows rod 4 to rotate within a hole or bearing through  
which the rod 4 passes. A similar connector support 5 is located above the  
15 angular bend of rod 4. Connector 5 attaches rod 4 parallel to a ridged  
portion 2 of vacuum hose. Connector 5 also allows rod 4 to rotate within a  
hole or bearing through which the rod 4 passes. A drive support 3 is similar  
to support 5 with the addition of mounting means to support a powered drive  
motor 3, which is attached to and rotates rod 4. The vacuum hose may have  
20 an attachment 1 to attach a vacuum source.

When power head rotary drive motor 3 rotates bent rod 4, it causes the  
attached vacuum hose to track parallel to the angular bent rod, thus the  
suction end 8 of the vacuum hose is caused to track in a circular motion  
covering an area larger than the diameter of the suction end 8 of the hose.

- 5 The increased track area of the suction end 8 of the vacuum hose allows a larger hole 9 to be vacuumed into the earth 10. The ability to vacuum a hole 9 in the earth 10 may be improved by using means such as a water nozzle 13 or air nozzle or vibrator to improve the vacuum ability of the earth 10.